Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham **v.** John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 23-25,27, 29, 33,34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gvozdanovic et al (US 6,600,720) in view of Seo (US 6,959,448), Gross (US 7,032,020), and Fang (US 2007/0064722)

For claim 23, Gvozdanovic discloses a method of transmitting data, said method comprising (see figs. 6-8):

(a) defining a first average rate to transmit a first plurality of packets of said data for presentation at a receiver (see col 5 lines 25-40 "SCR: Sustained cell rate..long term average rate"; figs. 6-8, SCR, all cells; col 8 lines 1-15 "sustained cell rate (average bandwidth) "; col 23 lines 10-15 "receiving end"; col 4 line 1-10 "at the transmitting entity…regenerates, at the receiving entity")

(b) defining a second rate to transmit a second plurality of packets of said data comprising a subset of said first plurality of packets wherein said second plurality of packets is less than said first plurality of packets, wherein said second rate is greater than said first average rate (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; figs. 6-8 PCR=4SCR, MBS; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length")'

(c) a transmitter automatically increasing the rate of transmission to said receiver of said second plurality of packets to said second rate (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; col 6 lines 30-34; figs. 6-8 PCR=4SCR, MBS; col 7 lines 5-21 "PRCVoice…voice traffic bursts at PCR"; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length"; col 23 lines 10-15 "receiving end"; col 4 line 1-10 "at the transmitting entity…regenerates, at

the receiving entity"; traffic speed is increased automatically to PCR when transmitting a burst of voice data from a transmitting end to receiving end);

(d) the ones of said first plurality of packets for presentation to user at said receiver that are included in said second plurality of packets (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; figs. 6-8 PCR=4SCR, MBS; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length"; figs 6-8, burst).

For claim 24, Gvozdanovic discloses wherein said second plurality of packets are provided to said transmitter at the maximum rate (see col 7 lines 1-15 "maximum allocated voice bandwidth…"; col 5 lines 25-40 "PCR…maximum rate").

For claim 25, Gvozdanovic discloses said second plurality of packets are provided as a burst of packets with at least two packets transmitted in a back-to-back fashion without other packets between them (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; figs. 6-8 burst; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length").

For claim 27, Gvozdanovic discloses all packets of said second plurality of packets contain at least one of audio data (see col 5 line 15-40 "voice traffic"; col 7 lines 25 through col 8 line 15 " voice channel").

For claim 29, Gvozdanovic discloses wherein said transmitting is by an APPLICATION LAYER (see col 5 line 25-35 "voice application").

For claim 33, Gvozdanovic discloses wherein steps (b) and (c) are performed a plurality of times over a time period (see figs. 6-8).

For claim 34, Gvozdanovic discloses wherein said first average rate is equal to the bit rate of the data source (see col 5 line 15-40 "Variable bit rate…").

Gvozdanovic does not explicitly discuss the following:

For claim 23, an average rate; estimating the bandwidth of said wireless interconnection based on respective arrival times, at said receiver, of only those ones that are included in a burst.

Gross from the same or similar field of endeavor discloses the following:

For claim 23, Gross discloses estimating the bandwidth of said wireless interconnection (see col 14 line 60 -67; method applies to any network including wireless) based on respective arrival times, at said receiver (see claim 1 "determining segment bandwidth capacity….time stamps"; col 5 line 20-30; col 7 line 66 through col 8 line 12; col 8 lines 30 through col 9 line 5; bandwidth capacity of network segment is determined using arrival times), of only those ones that are included in a burst (see col 5 line 31-67 ; col 6 line 47 through col 7 line 11; burst is used to calculate capacity);.

Seo from the same or similar field of endeavor discloses the following features:

For claim 23, Seo discloses from a transmitter to said receiver over a wireless interconnection (see fig. 1 ; 10, 20, 70, 80); a viewer at a receiver (see col 2 lines 1-40 "video file…provided from the server through a network…mobile terminal receives the video"); video for presentation to said viewer at said receiver (see col 2 lines 1-40 "video file…provided from the server through a network…mobile terminal receives the video...user")

Fang from the same or similar field of endeavor discloses the following features:

For claim 23, Fang discloses a average rate (see section 0091-92 "PCR…mean rates…")

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the features of Seo by using the above recited features, as taught by Gvozdanovic, Fang, and Gross in order to provide a reactive, realtime congestion control management method which allows more connections to be transported while maintaining quality(see Gvozdanovic cols 1-2) ; in order to efficiently transport synchronous data with limited jitter over a communication channel while making the remaining available bandwidth of the channel (see Fang section 0007); in order to provide a method for determining

segment and link bandwidth capacities in networks and other communication

systems, therefore being able to pinpoint potential problematic segments or high bandwidth segments in order to use network resources better (see Gross col 2 lines 7-32).

In regards to Gross it would have been obvious to a person of ordinary skill in the art to implement the bandwidth capacity estimation method using bursts, where burst as disclosed by Gvozdanovic are used. It would have been obvious to a person of ordinary skill in the art to mark and then at a receiver distinguish (classify) packets of a burst which are to be used for bandwidth estimation (see Gross col 7 line 66 through 12) to the packets of a transmitted and received burst of Gvozdanovic. It would have been obvious to implement and possible to implement Gross method of marking burst packets and identifying those packets to estimate bandwidth to Gvozadanovic since both send burst traffic in a IP network (see Gvozadanovic col 2 lines 43-48)

2. Claims 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gvozdanovic et al (US 6,600,720), Seo (US 6,959,448), Gross (US 7,032,020), and Fang (US 2007/0064722) as applied to claim 23, further in view of Makrucki (US 5,548,581)

For claim 28, Gvozdanovic, Seo, Gross and Fang discloses the claimed invention as described above.

Gvozdanovic, Seo, Gross and Fang are silent about:

For claim 28, said second plurality of packets is transmitted in a duration less than 1 second.

Makrucki from the same or similar field of endeavor discloses the following features:

For claim 28, Makrucki discloses said second plurality of packets is transmitted in a duration less than 1 second (see col 8 lines 20-40 "0.256 milliseconds…1 burst").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the features of Gvozdanovic, Seo, Gross and Fang by using the above recited features, as taught by Makrucki, in order to provide a communication system with an improved ability to make connection acceptance/rejection decisions (see Makrucki col 2)

3. Claims 30,31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gvozdanovic et al (US 6,600,720), Seo (US 6,959,448), Gross (US 7,032,020), and Fang (US 2007/0064722) as applied to claim 23, further in view Khirman (US 2008/0117915)

For claim 30,31, Gvozdanovic, Seo, Gross and Fang discloses the claimed invention as described above.

Gvozdanovic, Seo, Gross and Fang are silent about:

For claim 30 , wherein said transmitting is by a transport layer

For claim 31 and 42, wherein said transmitting is by a network layer

Khirman from the same or similar field of endeavor discloses a communication network with the following features:

For claim 30, Khirman discloses wherein said transmitting is by a transport layer (see section 0004 "transport layer…network layer"; see fig. 1).

For claim 31, Khirman discloses wherein said transmitting is by a network layer (see section 0004 "transport layer…network layer"; see fig. 1).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Gvozdanovic, Seo, Gross and Fang by using the features, as taught by Khirman, in order to provide a module where multiple higher level functions can operate on any lower level functions

4. Claims 35-37, 40, 44, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gvozdanovic et al (US 6,600,720) in view of Gross (US 7,032,020)

For claim 35, Gvozdanovic discloses A method of transmitting a contiguous sequence of data (see figs 6-8, burst), said method comprising:

(a) defining a transmission rate to transmit a plurality of packets of said contiguous sequence data wherein said transmission rate is greater than the average rate for transmitting said data to a receiver (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; figs. 6-8 PCR=4SCR, MBS; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length")' ;

(b)

transmitting said plurality of packets of said data (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; figs. 6-8 PCR=4SCR, MBS; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length")' over a

interconnection to a receiver (col 23 lines 10-15 "receiving end"; col 4 line 1-10 "at the transmitting entity…regenerates, at the receiving entity"), wherein all packets contain at least one of audio data (see col 5 line 15-40 "voice traffic"; col 7 lines 25 through col 8 line 15 " voice channel), at a rate automatically increased to said second rate (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; col 6 lines 30-34; figs. 6-8 PCR=4SCR, MBS; col 7 lines 5-21 "PRCVoice…voice traffic bursts at PCR"; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length"; col 23 lines 10-15 "receiving end"; col 4 line 1-10 "at the transmitting entity…regenerates, at the receiving entity"; traffic speed is increased automatically to PCR when transmitting a burst of voice data from a transmitting end to receiving end); those packets of said contiguous sequence of data included in said plurality of packets (see figs 6-8, burst)

For claim 36, Gvozdanovic discloses wherein said second plurality of packets are provided to said transmitter at the maximum rate (see col 7 lines 1-15 "maximum allocated voice bandwidth…"; col 5 lines 25-40 "PCR…maximum rate").

For claim 37, Gvozdanovic discloses said second plurality of packets are provided as a burst of packets with at least two packets transmitted in a back-to-back fashion without other packets between them (see col 5 lines 25-40 "PCR…SCR<PCR..MBS…maximum number..at PCR within the terms of the SCR..define bounds on burst durations"; figs. 6-8 burst; col 7 lines 25 through col 8 line 15 " maximum length…transmit at PCR…PCR=4SCR…maximum length").

For claim 40, Gvozdanovic discloses wherein said transmitting is by an APPLICATION LAYER (see col 5 line 25-35 "voice applicaton").

For claim 44, Gvozdanovic discloses wherein said first average rate is equal to the bit rate of the data source (see col 5 line 15-40 "Variable bit rate…").

Gvozdanovic is silent about:

For claim 35, estimating the bandwidth of said wireless interconnection based on respective arrival times, at said receiver, of only those ones that are included in a burst.

For claim 45, performing said transmitting and said estimating a plurality of times over a time period .

Gross from the same or similar field of endeavor discloses the following features:

For claim 35,Gross discloses estimating the bandwidth of said wireless interconnection (see col 14 line 60 -67; method applies to any network including wireless) based on respective arrival times, at said receiver (see claim 1 "determining segment bandwidth capacity….time stamps"; col 8 lines 30 through col 9 line 5; bandwidth capacity of network segment is determined using arrival times), of only those ones that are included in a burst (see col 5 line 20-29; col 5 line 31-67 ; col 6 line 47 through col 7 line 11; burst is used to calculate capacity);.

For claim 45, Gross discloses performing said transmitting and said estimating a plurality of times over a time period (see fig. 6, 7b).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the features of Gvozdanovic by using the above recited features, as taught by Gross in order to provide a reactive, in order to provide a method for determining segment and link bandwidth capacities in networks and other communication systems, therefore being able to pinpoint potential problematic segments or high bandwidth segments in order to use network resources better (see Gross col 2 lines 7-32). In regards to Gross it would have been obvious to a person of ordinary skill in the art to implement the bandwidth capacity estimation method using bursts, where burst as disclosed by Gvozdanovic are used. It would have been obvious to a person of ordinary skill in the art to mark and then at a receiver distinguish (classify) packets of a burst which are to be used for bandwidth estimation (see Gross col 7 line 66 through 12) to the packets of a transmitted and received burst of Gvozdanovic. It would have been obvious to implement and possible to implement Gross method of marking burst packets and identifying those packets to estimate bandwidth to Gvozadanovic since both send burst traffic in a IP network (see Gvozadanovic col 2 lines 43-48)

5. Claims 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gvozdanovic et al (US 6,600,720), Gross (US 7,032,020) as applied to claim 35, further in view of Makrucki (US 5,548,581)

For claim 39, Gvozdanovic, Gross discloses the claimed invention as described above.

Gvozdanovic,, Gross are silent about:

For claim 39, said second plurality of packets is transmitted in a duration less than 1 second.

Makrucki from the same or similar field of endeavor discloses the following features:

For claim 39, Makrucki discloses said second plurality of packets is transmitted in a duration less than 1 second (see col 8 lines 20-40 "0.256 milliseconds…1 burst").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify / combine the features of Gvozdanovic, and Gross by using the above recited features, as taught by Makrucki, in order to provide a communication system with an improved ability to make connection acceptance/rejection decisions (see Makrucki col 2)

6. Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gvozdanovic et al (US 6,600,720), Gross (US 7,032,020) as applied to claim 35, further in view Khirman (US 2008/0117915)

For claim 41,42, Gvozdanovic, Gross discloses the claimed invention as described above.

Gvozdanovic, Gross are silent about:

For claim 41, wherein said transmitting is by a transport layer

For claim 42, wherein said transmitting is by a network layer

Khirman from the same or similar field of endeavor discloses a communication network with the following features:

For claim 41, Khirman discloses wherein said transmitting is by a transport layer (see section 0004 “transport layer…network layer"; see fig. 1).

For claim 42, Khirman discloses wherein said transmitting is by a network layer (see section 0004 “transport layer…network layer"; see fig. 1).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Gvozdanovic, and Gross by using the features, as taught by Khirman, in order to provide a module where multiple higher level functions can operate on any lower level functions

Response to Arguments

7. Applicant's arguments filed 06/07/2011 have been fully considered but they are not persuasive.

The applicant argues that Gross fails modifying Gvozdanovic to transmit a subset of voice data to estimate bandwidth based on those packets. The examiner disagrees. The examiner never stated that Gross’s feature of requesting data packets (which is only used in certain embodiments) is needed. As it is clearly stated in Gross col 5 line 20-29 and col 8 lines 30 through col 9 line 5, we are able to classify / mark certain packets (i.e. the burst traffic) that are to be used for bandwidth estimation. The examiner maintains that it would be obvious to a person of ordinary skill to implement this classifying mark of packets to the packet burst that are being sent in Gvozdanovic so that the burst traffic sent in Gvozdanovic is classified as traffic on which bandwidth estimation is to be performed. This is possible since both Gross and Gvozdanovic disclosures are capable of being performed in a IP protocol (see Gvozadanovic col 2 lines 43-48). Further, as

argued by the applicant on page 8 of the Remarks, burst traffic does not need to ordered (which Gross discloses only in certain embodiments), since we have already burst traffic being sent Gvozdanovic; it just needs to be marked / classified as traffic on which bandwidth estimation is to be done.

Further the applicant points out (page 8 of the Remarks) that in Gross uses PCR as a limit on a transmission rate and not a "defined rate to force transmission to." The examiner disagrees. As pointed out in the above sections of Gross it is clear that we have transmission at PCR, where further if the sender want to transmit at above PCR, the limit is enforced and we automatically send at only the PCR. While transmission might not always be at PCR, it is clearly within Gvozadanovic scope of disclosure that we have transmission at a lower rate (e.g. SCR) where we automatically increase the rate of transmission to the PCR during a voice burst (e.g. when original voice data needs a data rate beyond PCR, transmission happens automatically at the PCR). Clearly, Gvozadanovic teaches transmitting at such a particular PCR, therefore it is not clear where the applicant finds support that "peak cell rate…something that should be avoided". During such a burst we implement the bandwidth estimation technique as described above. Therefore, there is no need to "force transmission to the maximum limit automatically during a predefined test interval." The examiner further fails to see that Gross **requires / is not able to implement** the method without a burst at a "predefined test interval. " Gross merely states that that the requested test packets are sent at a precise time however, this time is not required in the bandwidth calculation. See Gross col 8 lines 50-65, where timestamps of first and last packets are used to estimate the bandwidth. In

summary, it is clear that Gvozadanovic discloses a burst transmission at a PCR, where it would be obvious to a person of ordinary skill in the art to classify / mark the packets in this burst as packets on which bandwidth estimation is to be performed as taught by Gross.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENAN CEHIC whose telephone number is (571)270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KWANG BIN YAO can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenan Cehic/

Examiner, Art Unit 2473

/KWANG B YAO/

Supervisory Patent Examiner, Art Unit 2473